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EXAMINER	
GHULAMALI, QUTBUDDIN	

ART UNIT	PAPER NUMBER
2611	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/723,215	POLLEY ET AL.	
	Examiner	**Art Unit**	
	Qutbuddin Ghulamali	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _20 December 2007_.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-11,13-22,25 and 26_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-11,13-22,25 and 26_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

DETAILED ACTION

1. This Office Action is in response to the amendment/remarks filed 12/20/2007.

2. The rejection under 35 U.S.C. 112, 2nd paragraph has been withdrawn in view of amendments to claims 13-15, amendments acknowledged and approved.

Response to Remarks

3. Applicant's amendment/remarks (see page 9-13), filed 12/20/2007, with respect to the rejection of claims 1-8, 13-22 and 25-26 under 35 U.S.C. 103(a) and 35 U.S.C. 102(b), has been fully considered, but they are not persuasive. The response to applicant's remarks follow:

The applicant mainly remarks (page 9-11), with reference to the amended claims 1-8, 25-26 and amended claims 13-22, that Raleigh and Akaiwa combined fails to disclose "diversity selection logic coupled to the sub-channel power analysis logic and adapted to determine a weighting vector for an associated antenna based on the highest communication quality, wherein the weighting vector specifies a relative transmission power for each sub-channel for the associated antenna wherein the weighting vector specifies a relative transmission power for each sub-channel for the associated antenna". The examiner after a careful review of disclosures presented in Raleigh and Akaiwa, respectfully, disagrees with applicant's remarks.

The above limitation not explicitly disclosed in Raleigh is disclosed in Akaiwa. Akaiwa clearly shows sub-channel power analysis logic coupled to the plurality of antennas and adapted to determine a communication quality for at least two communication pathways and determine which communication pathway has a highest communication quality on a sub-channel by sub-channel basis (col. 1, lines 53-63; col. 3, lines 10-15, 45-55); diversity selection logic coupled to the sub-channel power analysis logic and adapted to determine a weighting vector for an associated antenna based on the highest communication quality, wherein the weighting vector specifies a relative transmission power for each sub-channel for the associated antenna (col. 1, lines 53-64; col. 4, lines 22-50). The examiner notes that the applicant admits that Akaiwa discloses col. 1, lines 53-64, figs. 1-2, in which Akaiwa refers to the correction circuit 13. col. 2, line 33, the circuit 13 receives multiple antenna signals via antennas 11 and 12. In turn, the circuit 13 generates a corrected signal as a weighted combination of the received antenna signals using a constant modulus process, Akaiwa also discloses a diversity selecting circuit 14, which selects the best of a plurality of received antenna signals and generates a corresponding diversity signal, col. 1, lines 55-58; col. 2, lines 18-21. The circuit 13 provides its corrected signal to the signal quality monitor 17, and the circuit 14 also provides its diversity signal to the signal quality monitor 17. In turn, the signal quality monitor 17 outputs either the corrected signal (which was received from the circuit 13) or the diversity signal (which was received from the circuit 14), Akaiwa thus discloses a receiver that is used to receive signals, process them in well-known ways (col. 1, lines 27-40) to produce two candidates (the corrected signal and the diversity

signal), and select the best candidates from the two candidates for further processing. However, the applicant failed to recognize that Akaiwa also discloses that the processing circuit shown in fig. 3 disclose each input signal is multiplied by a weight factor W1 and W2 in circuits 33 and 34 and that the weight factors are determined according to a constant modulus processor 39 in response to input signals x1(t) and x2(t) for each associated antenna (col. 2, lines 50-65; col. 3, lines 1-41).

Regarding claim 13, applicant remarks (page 11) that Raleigh and Akaiwa does not disclose “on a per sub-channel basis, computing a weighting vector for each antenna of the plurality of antennas based on the plurality of channel characteristics”. The examiner points out that Raleigh discloses on a per sub-channel basis, computing a weighting vector for each antenna of the plurality of antennas based on the plurality of channel characteristics (col. 8, lines 1-9, 40-53; col. 17, lines 30-53).

Regarding claim 18 applicant remarks that Raleigh and Akaiwa fail to disclose “wherein the access point determines channel characteristics and a weighting vector for each antenna of the plurality of antennas, each weighting vector being indicative of an amount of power to be provided to each sub channel for an associated antenna”. Raleigh discloses reproduces (creates) a data transmission signal (col. 8, lines 55-58), combines each copy of the data transmission signal with a different weighting vector to produce a weighted transmission signal for transmission (col. 8, lines 41-46). Since Raleigh, does not explicitly disclose each weighting vector being indicative of an amount of power to be provided to each sub-channel for an associated antenna, Akaiwa has been relied upon to disclose use of sub-channel power analysis logic adapted to

determine a weighting vector for an associated antenna based on the highest communication quality, wherein the weighting vector specifies a relative transmission power for each sub-channel for the associated antenna (col. 1, lines 53-64; col. 4, lines 22-50). The examiner points out and recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F. 2d 1071, 5 USPQ 2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F. 2d 347, 21 USPQ 2d 1941 (Fed. Cir. 1992). In this case, the combination Raleigh and Akaiwa disclose all limitations of the claim as recited.

As to applicant’s remarks regarding (page 11-12) claim 25, Akaiwa clearly discloses plurality of antennas coupled to a switch 43 to select antenna signal selecting a plurality of antennas and providing power to each antenna of the plurality of antennas based on the number of data transmissions since the communication quality was last determined (col. 1, lines 53-63; col. 3, lines 44-62; col. 4, lines 15-65).

As to applicant’s remarks (page 12-13) regarding Raleigh fail to disclose “computing a weighting vector for each antenna of the plurality of antennas based on the channel characteristics” and “representing the weighting vector using a plurality of bits representing the weighting vector using a plurality of bits, each bit corresponding to a different sub-channel, and each bit indicating whether an antenna associated with the weighting vector is used to transmit data on the corresponding sub-channel”, the examiner once again draw applicants attention to Raleigh (col. 2, lines 1-15; col. 6, lines

42-67; col. 8, lines 40-58) that discloses in anticipation limitations of the calim as recited in claim 9 (the input data sequence is encoded into sequence of symbols of digitized values or bits) each bit corresponding to a different sub-channel, and each bit indicating whether an antenna associated with the weighting vector is used to transmit data on the corresponding sub-channel (Note: the Industry Standard, such as IEEE 802.11a, b, g describes protocols for use in OFDM and in DSSS wherein communication between two devices is enabled by splitting into several parts or subchannels each byte of data to be transmitted for transmission concurrently or simultaneously on different frequencies over sub-channels of a wide frequency spectrum, is well known in the art of communication) (col. 5, lines 35-67; col. 6, lines 42-67);

for each communication pathway, combining a transmission signal with the weighting vector to form a weighted transmission signal (col. 6, lines 42-40; col. 8, lines 40-48); and transmitting the weighted transmission signal from the second wireless device to the first wireless (from one device to another) device via a plurality of communication pathways (col. 6, lines 42-50; col. 7, lines 35-39).

The rejection of the claims and its detail follow.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-8, 13-22, 25, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raleigh et al (USP 6,144,711) in view of Akaiwa et al (USP 5,710,995).

Regarding claims 1, 20, Raleigh discloses a wireless communication system comprising:

a plurality of antennas through which the wireless device communicates with a second wireless device, each antenna of the plurality of antennas communicates with the second wireless device via an associated communication pathway (col. 2, lines 1-15; col. 11, lines 42-67). Raleigh, however, does not explicitly disclose,

sub-channel power analysis logic coupled to the plurality of antennas and adapted to determine a communication quality for at least two communication pathways and determine which communication pathway has a highest communication quality on a sub-channel by sub-channel basis; and

diversity selection logic coupled to the sub-channel power analysis logic and adapted to determine a weighting vector for an associated antenna based on the highest communication quality, wherein the weighting vector specifies a relative transmission power for each sub-channel for the associated antenna.

However, Akaiwa in a similar field of endeavor discloses sub-channel power analysis logic coupled to the plurality of antennas and adapted to determine a communication quality for at least two communication pathways and determine which communication pathway has a highest communication quality on a sub-channel by sub-channel basis (col. 3, lines 45-55);

diversity selection logic coupled to the sub-channel power analysis logic and adapted to determine a weighting vector for an associated antenna based on the highest communication quality, wherein the weighting vector specifies a relative transmission power for each sub-channel for the associated antenna (col. 1, lines 53-64; col. 4, lines 22-50). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to utilize a sub channel power analysis and a diversity selection logic circuit as taught by Akaiwa in the system of Raleigh because with the use sub channel power analysis distortion resulting from multipath transmission can be mitigated to arrive at optimized quality of the received signal and diversity selection to allow best possible antenna signal selection of power and quality.

Regarding claim 2, Raleigh discloses representing the weighting vector using a plurality of bits, (the input data sequence is encoded into sequence of symbols of digitized values or bits) each bit corresponding to a different sub-channel, and each bit indicating whether an antenna associated with the weighting vector is used to transmit data on the corresponding sub-channel (col. 5, lines 35-67; col. 6, lines 42-67).

Regarding claim 7, Raleigh discloses wireless device wirelessly communicate with a plurality of wireless stations (see fig. 6).

Regarding claim 8, Raleigh discloses all limitations of the claim above. Raleigh does not explicitly disclose a signal selection circuit (splitter) coupled to diversity logic to reproduce signals to be transmitted. However, Akaiwa, discloses signal selection circuit (splitter) coupled to diversity logic to reproduce signals to be transmitted (col. 4, lines 18-44). It would have been obvious to a person of ordinary skill in the art at the time the

invention was made to use selection circuit (splitter) coupled to diversity logic as taught by Akaiwa in the system of Raleigh because it can allow signals to be reproduced for transmission more effectively.

Regarding claims 13, 3, 20, Raleigh discloses a method comprising:

receiving data from a first wireless devices to a second wireless devices using a plurality of antennas (fig. 4-5, elements 55) a plurality of antennas through which the wireless device communicates with a second wireless device, each antenna of the plurality of antennas communicates with the second wireless device via an associated communication pathway (155a-f) (col. 2, lines 1-15; col. 11, lines 42-67);

determining a plurality of channel characteristics (radiation pattern such as cross talk or signal to noise ratio associated with channel communication is well studied in the art of spatial communication) associated with each antenna of the plurality of antennas (col. 17, lines 30-53);

on a per sub-channel basis, computing a weighting vector for each antenna of the plurality of antennas based on the plurality of channel characteristics (col. 8, lines 1-9, 40-53; col. 17, lines 30-53);.

for each communication pathway, combining a transmission signal with the weighting vector to form a weighted transmission signal (col. 6, lines 42-40; col. 8, lines 40-48); and

transmitting the weighted transmission signal from the second wireless device to the first wireless (from one device to another) device via a plurality of communication pathways (col. 6, lines 42-50; col. 7, lines 35-39). Raleigh does not explicitly disclose

weighting vector in a ratio format; and ratio format specifies an amount of power to be applied to an antenna associated with the weighting vector for each subchannel. The examiner takes the position that values or vector weights can be represented in as a ratio and is well known in the art. As per an amount of power to be applied to an antenna associated with the weighting vector for each subchannel, Akaiwa, however, discloses an amount of power to be applied to an antenna associated with the weighting vector for each subchannel (col. 3, lines 45-55). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to specify an amount of power to be applied to an antenna associated with weight vectors as taught by Akaiwa in the system of Raleigh because with the use of amount of power to be applied in a ration form can optimize quality of the received signal and antenna signal selection of power and quality.

Regarding claim 14, Raleigh discloses all limitations of the claim above, except does not explicitly disclose the amount of power to be applied to an antenna is based on the communication quality of each subchannel. However, Akaiwa discloses the amount of power to be applied to an antenna is based on the communication quality of each subchannel (col. 3, lines 10-62). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to specify an amount of power to be applied to an antenna associated with weight vectors as taught by Akaiwa in the system of Raleigh because with the use of amount of power to be applied in a ration form can optimize quality of the received signal and antenna signal selection of power and quality.

As to claim 17, Raleigh discloses various sub-channels are characterized by the signal-to-noise ratio (col. 17, lines 40-53; col. 18, lines 8-25).

Regarding claim 18, Raleigh discloses a system comprising:
an access point (a node or a connection for receiving and transmitting signals such as an antenna) having a plurality of antennas (fig. 6, element 55);
a wireless station in communication with the access point via a single antenna in the wireless station (col. 2, lines 1-15), wherein the plurality of antennas in the access point receive a data signal from the single antenna in the wireless station via a plurality of communication pathways (col. 7, lines 35-40), each communication pathway comprising a plurality of sub-channels ; wherein the access point determines channel characteristics and a weighting vector for each antenna of the plurality of antennas (col. 8, lines 40-50, 55-63); wherein the access point reproduces (creates) a data transmission signal (col. 8, lines 55-58), combines each copy of the data transmission signal with a different weighting vector to produce a weighted transmission signal for transmission (col. 8, lines 41-46). Raleigh, however does not explicitly disclose each weighting vector being indicative of an amount of power to be provided to each sub-channel for an associated antenna. However, Akaiwa in a similar field of endeavor discloses use of sub-channel power analysis logic adapted to determine a weighting vector for an associated antenna based on the highest communication quality, wherein the weighting vector specifies a relative transmission power for each sub-channel for the associated antenna (col. 1, lines 53-64; col. 4, lines 22-50). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to

utilize a sub channel power analysis logic circuit as taught by Akaiwa in the system of Raleigh because with the use sub channel power analysis, distortion resulting from multipath transmission can be mitigated to allow optimized quality of the received signal and diversity selection for best possible antenna signal selection of power and quality.

Regarding claim 19, the Industry Standard, such as IEEE 802.11a, b, g describes protocols for use in OFDM and in DSSS wherein communication between two devices is enabled by splitting into several parts or subchannels each byte of data to be transmitted for transmission concurrently or simultaneously on different frequencies over sub-channels of a wide frequency spectrum, is well known in the art of communication (col. 5, lines 35-67; col. 6, lines 42-67).

Regarding claim 21, Raleigh discloses amount of power to be provided to antennas for various sub-channels are characterized by the signal-to-noise ratio for that antenna (col. 18, lines 8-25). Raleigh does not explicitly disclose each sub-channel selecting a plurality of antennas and providing power to each antenna of the plurality of antennas based on the number of data transmissions since the communication quality was last determined. Akaiwa in a similar field of endeavor discloses plurality of antennas coupled to a switch 43 to select antenna signal selecting a plurality of antennas and providing power to each antenna of the plurality of antennas based on the number of data transmissions since the communication quality was last determined (col. 1, lines 53-63; col. 3, lines 44-62; col. 4, lines 15-65). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to select antenna signal selecting a plurality of antennas and providing power to each antenna of the

plurality of antennas as taught by Akaiwa in the system of Raleigh because it can adaptively reduce signal distortion and fading effects due to multipath in transmission of broadcast signals.

Regarding claim 22, Raleigh discloses amount of power to be provided to antennas for various sub-channels are characterized by the signal-to-noise ratio for that antenna (col. 18, lines 8-25). Raleigh does not explicitly disclose each sub-channel selecting a plurality of antennas and providing power to each antenna of the plurality of antennas based on the amount of time elapsed since the communication quality was last determined. Akaiwa in a similar field of endeavor discloses plurality of antennas coupled to a switch 43 to select antenna signal selecting a plurality of antennas and providing power to each antenna of the plurality of antennas based on the amount of time elapsed (col. 3, lines 30-40) since the communication quality was last determined (col. 1, lines 53-63; col. 3, lines 44-62; col. 4, lines 15-65). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to select a plurality of antennas and providing power to each antenna of the plurality of antennas based on time elapsed as taught by Akaiwa in the system of Raleigh because it can adaptively reduce signal distortion and fading effects due to multipath in transmission of broadcast signals.

Regarding claim 25, 4, 5, 15, Raleigh discloses a method comprising: for each of a plurality of antennas, determining communication quality of each sub-channel of a communication pathway, the communication pathway comprising a plurality of sub-

channels (a "sub-channel" is a combination of a bin in a substantially orthogonalizing procedure (SOP)) (col. 1, lines 31-59; col. 2, lines 1-15);
for each sub-channel, selecting at least one antenna (selects at least one spatial direction associated with an antenna, see fig. 24) for data transmission based on the communication quality of said antenna (col. 26, lines 49-52; col. 27, lines 45-55); and concurrently transmitting data via the plurality of antennas across the plurality of sub-channels (col. 27, lines 64-67). Raleigh does not explicitly disclose each sub-channel selecting a plurality of antennas and providing power to each antenna of the plurality of antennas based on the number of data transmissions since the communication quality was last determined. Akaiwa in a similar field of endeavor discloses plurality of antennas coupled to a switch 43 to select antenna signal selecting a plurality of antennas and providing power to each antenna of the plurality of antennas based on the number of data transmissions since the communication quality was last determined (col. 1, lines 53-63; col. 3, lines 44-62; col. 4, lines 15-65). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to select antenna signal selecting a plurality of antennas and providing power to each antenna of the plurality of antennas as taught by Akaiwa in the system of Raleigh because it can adaptively reduce signal distortion and fading effects due to multipath in transmission of broadcast signals.

Regarding claim 26, 6, Raleigh discloses a method comprising: for each of a plurality of antennas, determining communication quality of each sub-channel of a communication pathway, the communication pathway comprising a plurality of sub-

channels (a "sub-channel" is a combination of a bin in a substantially orthogonalizing procedure (SOP)) (col. 1, lines 31-59; col. 2, lines 1-15);

for each sub-channel, selecting at least one antenna (selects at least one spatial direction associated with an antenna, see fig. 24) for data transmission based on the communication quality of said antenna (col. 26, lines 49-52; col. 27, lines 45-55); and concurrently transmitting data via the plurality of antennas across the plurality of sub-channels (col. 27, lines 64-67). Raleigh does not explicitly disclose each sub-channel selecting a plurality of antennas and providing power to each antenna of the plurality of antennas based on the amount of time elapsed since the communication quality was last determined. Akaiwa in a similar field of endeavor discloses plurality of antennas coupled to a switch 43 to select antenna signal selecting a plurality of antennas and providing power to each antenna of the plurality of antennas based on the amount of time elapsed (col. 3, lines 30-40) since the communication quality was last determined (col. 1, lines 53-63; col. 3, lines 44-62; col. 4, lines 15-65). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to select a plurality of antennas and providing power to each antenna of the plurality of antennas based on time elapsed as taught by Akaiwa in the system of Raleigh because it can adaptively reduce signal distortion and fading effects due to multipath in transmission of broadcast signals.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 9-11 are rejected under 35 U.S.C. 102 (b) as being anticipated by Raleigh et al (USP 6,144,711).

Regarding claim 9, Raleigh discloses, transmitting data from a first wireless device to a second wireless device using a plurality of antennas, wherein each antenna communicates with the second wireless device via an associated communication pathway (col. 2, lines 1-15);

determining a plurality of channel characteristics (within Channel ID block 130, the characteristics of the digital communication channel are estimated, the estimated channel values consist of entries in a matrix for each SOP bin, the matrix contains complex values representing the magnitude of the spatial channel within the SOP bin from one transmit antenna element to one receive antenna element, the transmitted information among the various sub-channels available for transmission are determined based upon the measured communication quality of the space frequency information that carries the symbol stream) associated with each of the plurality of antennas (col. 8, lines 1-9; col. 5, lines 61-67; col. 6, lines 1-5);

on a per sub-channel basis, computing a weighting vector for each antenna of the plurality of antennas based on the channel characteristics (channel state information within each SOP bin) (col. 2, lines 1-15; col. 6, lines 42-67; col. 8, lines 40-58);

representing the weighting vector using a plurality of bits, (the input data sequence is encoded into sequence of symbols of digitized values or bits) each bit corresponding to a different sub-channel, and each bit indicating whether an antenna associated with the weighting vector is used to transmit data on the corresponding sub-channel (Note: the Industry Standard, such as IEEE 802.11a, b, g describes protocols for use in OFDM and in DSSS wherein communication between two devices is enabled by splitting into several parts or subchannels each byte of data to be transmitted for transmission concurrently or simultaneously on different frequencies over sub-channels of a wide frequency spectrum, is well known in the art of communication) (col. 5, lines 35-67; col. 6, lines 42-67);

for each communication pathway, combining a transmission signal with the weighting vector to form a weighted transmission signal (col. 6, lines 42-40; col. 8, lines 40-48); and

transmitting the weighted transmission signal from the second wireless device to the first wireless (from one device to another) device via a plurality of communication pathways (col. 6, lines 42-50; col. 7, lines 35-39).

Regarding claim 10, Raleigh discloses data transmission from one wireless device to a plurality of devices and receives data from a plurality of wireless devices (col. 2, lines 1-8).

As per claim 11, Raleigh discloses each weighting vector specifies a relative transmission power for each sub-channel (col. 8, lines 63-67).

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutub Ghulamali whose telephone number is (571) 272-3014. The examiner can normally be reached on Monday-Friday, 7:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

QG.
March 30, 2008.

/CHIEH M FAN/
Supervisory Patent Examiner, Art Unit 2611